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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/695,938  | 10/30/2003  | Olivier Rayssac      | 4717-7900           | 6283             |
| 28765   | 7590        | 03/29/2005           | EXAMINER            |                  |
| WINSTON & STRAWN<br>PATENT DEPARTMENT<br>1400 L STREET, N.W.<br>WASHINGTON, DC 20005-3502 |             |                      | SMITH, BRADLEY      |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2891                |                  |

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/695,938

**Applicant(s)**

RAYSSAC

**Examiner**

Bradley K. Smith

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 15, 16, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/30/03, 2/11/04</u> | 6) <input checked="" type="checkbox"/> Other: <u>search notes</u>                      |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Furukawa et al. (US Patent 4,990,994). Furukawa et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern to improve adhesion during subsequent bonding (See column 3 lines 45-55). With regards to claim 3,

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Furukawa et al. disclose bombarding the substrate with Argon ions. With regards to claim 4, Furukawa et al. disclose the semiconductive material is made of SiC.

5. Claims 1, 5-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al. (US Pregrant Publication 2005/0042800). Yamada et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern (see abstract). With regards to claims 5-7, Yamada et al. disclose bombarding the SiC the substrate with reactive ions  $\text{SF}_6$  and  $\text{O}_2$  (see paragraph 0014).

6. Claims 1, 2, 8, 11-14 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Maleville et al. (US Pregrant Publication 2004/0112866). Maleville et al. disclose bombarding a surface of the semiconductor material with a beam containing a controlled number of ions in ion clusters to etch a pattern in the surface with the beam, wherein the number of ions is controlled to provide a desired roughness of the surface pattern. With regards to claim 2 Maleville et al. disclose bonding the surface to a detachable semiconductor structure (figures 1a-1f). With regards to claim 8 Maleville et al. disclose ion bombardment is controlled to smooth the surface to a roughness value suitable for molecular bonding (see paragraph 0009). With regards to claim 11-14, Maleville et al. disclose directing the ion clusters to selectively treat desired zones of the surface to create an adjusted pattern thereon (see paragraph 0036). With regards to claim 17, Maleville et al. disclose the wafer is recycled.

***Allowable Subject Matter***

7. Claims 9, 10, 15, 16, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither teaches nor suggests controlling the ions by controlling the pressure of the ion source (claim 9), controlling the acceleration voltage in order to control the etch rate (claim 10), creating a pattern with different roughnesses in comparison to other surfaces on the wafer (claims 15 and 16), a material that is different than the semiconductor material and providing the surface that is to be etched (claims 18 and 19).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is (571) 272-1884. The examiner can normally be reached on 10-6 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Brad Smith', is positioned above the printed name.

Brad Smith  
Primary Examiner  
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